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REGULAR USE OF ACETYLSALICYLIC ACID IN LOW DOSES CAN FIGHT COLORECTAL CANCER

A group of researchers coordinated by the University of Padua observed a mechanism of action by which acetylsalicylic acid appears to activate an immune response against colorectal cancer

It has been known that long-term daily use of low-dose acetylsalicylic acid, the so-called "aspirine" taken to limit the risks of cardiovascular disease, also appears to reduce the incidence and mortality due to colorectal cancer. However, not all the possible mechanisms of action of the anti-tumor effect were known.

The multicenter study "Immunoreact 7" involves 14 Italian research groups, coordinated by Dr. Marco Scarpa of the Department of Surgical, Oncological and Gastroenterological Sciences of the University of Padua Hospital. Supported by the AIRC Foundation for Cancer Research, the study aims to evaluate the effect of acetylsalicylic acid on the tumor microenvironment, systemic immunity, and the healthy mucosa surrounding colorectal cancer. The drug is commonly taken in low doses to reduce the likelihood of certain cardiovascular diseases.



Marco Scarpa

«In the first part of the study we retrospectively analyzed samples and data of patients diagnosed with colorectal cancer operated between 2015 and 2019 at the University Hospital of Padua – **explains Dr Scarpa** -. We therefore studied, again in samples obtained from patients, the mRNA expression of genes associated with immune surveillance in primary colorectal cancer cells from patients taking acetylsalicylic acid. We also replicated these measurements experimentally, on cell lines, at the University of Padua and the Veneto Oncology Institute. Finally, we further studied the immune microenvironment of the healthy mucosa surrounding colorectal cancer in samples obtained from a large subgroup of patients who participated in the multicenter IMMUNOREACT project about the local immune response to rectal cancer.»

Compared with tissue samples from patients not taking the drug, those obtained from patients taking it showed less spread of the cancer to the lymph nodes and greater infiltration of immune cells into the tumor. In analyses of colorectal cancer cells in the laboratory, exposure of these cells to acetylsalicylic acid caused an increase in the protein CD80, a modulator of immune function. This increase appears to have improved the cells' ability to alert other defense cells to the presence of tumor-associated proteins. In support of this finding, the researchers also highlighted that in patients with rectal cancer, those taking acetylsalicylic acid had higher CD80 protein levels in healthy rectal tissue, thus suggesting that the drug induces an immune surveillance effect.

The article entitled "IMMUNOREACT 7: Regular aspirin use is associated with immune surveillance activation in colorectal cancer" is published in the journal «Cancer» (link to the study <http://doi.wiley.com/10.1002/cncr.35297>). The results show that acetylsalicylic acid, in

addition to its classic pharmacological mechanism which involves the inhibition of inflammation, might also act in favor of the prevention and treatment of colorectal cancer in the early stage.